

A

# DISCOURSE

ON

# INOCULATION,

Read before the Royal ACADEMY of SCIENCES at *Paris*, the 24th of *April* 1754.

By Mr. *LA CONDAMINE*.

Knight of the military Order of St. LAZARUS, Fellow of the ROYAL SOCIETY, and Member of the ROYAL ACADEMIES OF SCIENCES at *Paris*, and at *Berlin*.



*J. Malle delin.*

*T. Major sculp.*

LONDON:

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To the AUTHOR.

S I R,

**T**O your friendship I owed the first communication of your discourse. The same principle makes it a duty in me to offer you this translation. If the new dress, in which it now appears, should permit a Father still to own it, my end will be answer'd, the opinion of the public secured, and the liberty justified which I take of professing myself,

S I R,

*Your most obedient Servant,*

*and much obliged Friend,*

London, March 4,  
1755.

M. M A T Y.

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## PREFACE of the Translator.

**T**HE subject of this discourse, and the satisfaction it gave to the numerous and learned assembly, before which it was read, were my inducements to venture upon a translation of it. As I export six times a year, from this Island, such accounts of its Literary Productions as may be entertaining or instructive to our neighbours, I thought it was but just, in return, to import, now and then, from abroad, such works, as may tend to the advancement of science and the good of the community.

The name of Mr. La Condamine is not unknown to those, who have heard of that laborious expedition to the Equator, perform'd by three members of the Royal Academy of Sciences at Paris, to measure the first degrees of the meridian, and by that means to ascertain the real figure of the earth. The fatigues and obstructions, as well of the moral as of the physical kind, these gentlemen met with in a  
ten



ten years journey, over icy Alps, and amidst a jealous and superstitious people, can only be equal'd by the sagacity, accuracy, and perseverance, with which they conducted and completed their work. They did not confine themselves to the object of their mission; they found time for many other researches. By the united labours of Messrs. Bouguer and La Condamine, the Newtonian system no longer wants that ocular demonstration, which its great author despaired that human industry could ever arrive at\*. The only good history of the tree that bears the Jesuit's bark, we owe to the last of these gentlemen †, who examined it in its natural soil. He likewise, for the advancement of science, chose the most difficult rout in his return to Europe, in order to give us his curious and instructive description of the longest and least known river in the world ‡.

But although these different researches have deservedly raised the reputation of their author, none has done him more honour than this discourse on Inoculation. The learned and unlearned, the court as well as the city, appeared

\* NEWTON *de Mundi Systemate*, p. 26, et 27.

† Mem. de l'Ac. des Sc. de Paris, anno 1738. p. 226.

‡ His account of the river of the *Amazons* was publish'd in *English* some years ago.

*appeared equally well pleased with this performance, and if our last informations are true, there is room to think, that his most christian Majesty may be induced to follow the example that a British Prince first gave.*

*As Mr. la Condamine's sentiments upon Inoculation were far from being agreeable to the notions of his countrymen, it is not difficult to guess at the reasons which conciliated to him the favour first of his audience, and then of his readers: Quid Pericles? de cujus dicendi copia sic accepimus, ut, cum contra voluntatem Atheniensium loqueretur pro salute patriæ, severius tamen id ipsum, quod ille contra populares homines diceret, populare omnibus et jucundum videretur.\**

*Our French Pericles has not only collected, with equal care and judgment, the most important pieces that have been published in England about the insertion of the small-pox, he has likewise made use of those which his own and other nations could furnish him with. By the help of these materials, some of which are little known in England, he has compiled a history of this method more compleat than any yet published.*

To

\* Cicero de Orat. III. 34.



*To be acquainted with the origin of useful inventions, to trace their progress and their revolutions, to observe the difficulties with which they struggle, and the means by which they rise, is not a matter of mere curiosity: it directs us in the most important of all studies, that of the human mind, and of the motives by which it is influenced.*

*The very different reception Inoculation met with among some unenlightened Asiatics and Americans, and among the civilized inhabitants of one of the most considerable nations in Europe, may teach us not to think reason confined to any spot of ground. It has been many times observed, and cannot be too often repeated, that unassisted nature is a much surer guide to truth, than the greatest learning attended with prejudice and passion. Were honest Montaigne to speak the mind of his countrymen about the people, who, for ought we know, invented Inoculation, would he not say, Tout cela ne va pas trop mal: mais quoy? ils ne portent point de haut de chausses?†*

*Yet let us not be unjust to the enemies of this Asiatick method: they too pretend to reason: to plain facts they oppose, what learned  
prejudice*

† Essais de Montaigne, i. 30.

*prejudice seldom wants, and what the Circassians never dreamt of, metaphysical arguments. These unsubstantial monsters resemble Virgil's Gorgons and Chimeras, and our author, like the poet's hero, no sooner attacks them, but he finds that they are mere shadows,*

————— *tenues sine corpore vitas*

*Miratur volitare cava sub imagine formæ ;\**

*or rather, that after they are stript of their form, they change sides, and fight for that very cause they were brought to oppose.*

*The method which our author follows in ascertaining the degree of confidence we may place in Inoculation, is not only useful in this case ; it is of the same importance in most of our actions. It consists in fairly stating the probability on both sides, and determining for that which has the greatest appearance of proving successful and beneficial. Happy would it be for mankind, if in all cases the odds were as much on one side as they seem to be in this !*

*The generous impartiality which Mr. la Condamine every where expresses in mentioning other nations, together with the love he manifests for his own, bespeak him at once*  
the

\* Virgil. Æneid. VI.



*the Cosmopolite and the Patriot, an ornament to his own country, as he would have been to any. He endeavours to engage his fellow-citizens not to reject a beneficial invention, because it was first adopted by their rivals. Self-interest, and what sometimes is still more prevailing, emulation, are the motives he urges. Should they at last prevail over prejudice and bigotry, what an inward satisfaction must he feel, to whom his country will every year owe many thousands of lives!*

*The gentleman and the fine writer appear through the course of this performance, no less than the philosopher and the patriot. If he forces conviction by the strength of his arguments, he no less engages the attention by the beauty of his images, and the liveliness of his stile.*

*To preserve in a translation the spirit of the original, to make a French orator speak before a British audience, is by no means an easy task: Every nation has a peculiar taste adapted to their manners, and to their genius. He that applies to the passions of men, (and eloquence is founded upon the passions) must know the arts to please, and these arts vary according to different times or climates.*

*Whether a translation ought to appear a perfect original, or whether it ought not in some degree to bear the stamp of the time and place in which the author wrote, has been much disputed; and it would ill become me to enter into the controversy. I shall only say, that if, notwithstanding my endeavours to naturalize my author, he should still retain something of the foreigner in his countenance or address, no man has in this respect a juster claim to the indulgence of the public than myself.*

*The obligations I have to some learned friends, who were pleased to look over these sheets, and to assist me with their advice, I can never sufficiently acknowledge. It would be a real satisfaction to me, were I permitted to name them. But the public will not be biassed, and I have not vanity enough to think this a proper place for their names.*

*A few notes of my own I have ventured to add to those of the original; they are distinguished by particular marks, and will not, I hope, appear altogether impertinent or useless. They tend in general to confirm the doctrine delivered in the discourse; they may rectify a few mistakes in the facts or the computations;*  
and



and from my friend I had full leave to make them.

They who will be at the trouble to compare the edition of this discourse published at Paris \* with this translation, will find in the latter many things inserted in the text. These additions were sent me by the author himself: He was willing, that the nation, for which he every where professes the highest regard, and whose observations are the basis of his work, should before all others receive it in its most perfect state; or rather, he was sensible that what his discourse must needs lose in my hands, could never be supplied better than by his own.

\* *Memoire sur l'Inoculation de la petite vérole lu à l'assemblée publique de l'Académie Royale des Sciences, le Mercredi 24 Avril, 1754, par Mr. de la Condamine, Chevalier de l'ordre militaire de S. Lazare, de l'Académie Royale des Sciences, des Sociétés Royales de Londres et de Berlin. A Paris, chez Durand Libraire, rue S. Jaques, 1754.*

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## P O S T S C R I P T.

**T**HIS preface was already in the press, when I receiv'd from his Excellency Mr. Porter, his Majesty's ambassador at Constantinople, the following account about the introduction and present state of Inoculation in the East. This gentleman, whose humanity and

learning are no less eminent than his capacity and zeal in the high post he so worthily fills, obliged me with some new facts relating to the insertion of the small-pox. These I lay before the public, knowing that a good cause has nothing to fear from truth, and that truth was Mr. La Condamine's object as well as mine.

Constantinople, Feb. 1. 1755.

“ Inoculation is practised at present among  
 “ the *Greeks*, and notwithstanding reli-  
 “ gious scruples, among the *Romanists*.  
 “ With the few I have known, it generally  
 “ succeeded, but the numbers will not ad-  
 “ mit of comparison; there are not per-  
 “ haps twenty in a year inoculated. The  
 “ *Timoni* family pretend that a daughter  
 “ had been inoculated at six months old \*,  
 “ but afterwards acquired the small-pox in  
 “ the natural way, and died at twenty-  
 “ three years; the evidence is doubtful.  
 “ *Timoni's* account is incorrect, his facts  
 “ are not to be depended on. *Pylarini* is  
 “ more exact. It was neither *Circassians*,  
 “ *Georgians*, nor *Asiatics* that introduced  
 “ the practice; the first woman was of the  
 “ *Morea*, her successor was a *Bosniac*; they  
 “ brought

\* We may question whether the operation did succeed upon the child, and the falsity of similar reports spread at less distance of time or place may induce us to presume it did not.



“ brought it from *Thessaly*, or the *Pelopon-*  
 “ *nesus* now *Morea*. They properly scari-  
 “ fy’d the patient, commonly on many  
 “ parts, sometimes on the forehead un-  
 “ der the hair, sometimes on the cheeks,  
 “ and on the radius of the arm. A father  
 “ told me, that the old woman not being  
 “ able through age to make the incision on  
 “ his daughter with a razor, he performed  
 “ that operation. The needle has also been  
 “ used. *Turks* never inoculate; they trust  
 “ to their *fatum*. Whence it had its origin  
 “ seems here unknown. A capuchin friar  
 “ whom I often see, was on a mission in  
 “ *Georgia* for above sixteen years, he is  
 “ about two years return’d; he is a grave,  
 “ sober man, who gives an historical ac-  
 “ count of the virtues and vices, good and  
 “ evil, of that country with plainness and  
 “ candour. The usual introduction and se-  
 “ curity of these missionaries is the pretence  
 “ to the practice of physic, that in de-  
 “ stroying bodies they may save souls, so  
 “ that this honest man who is extremely  
 “ ignorant, was in high reputation both as  
 “ physician and confessor; it was therefore  
 “ impossible, as he himself observes, that  
 “ either the public or private practice of In-  
 “ oculation could be concealed from him, but  
 “ he has most solemnly declared to me re-

“peatedly, that he never heard one word  
 “about it at *Akalsike*, *Limerette*, or *Tifflis*;  
 “he is persuaded that it has never been  
 “known amongst them. He has often and  
 “frequently attended the small-pox, which  
 “is almost certain death there, and gene-  
 “rally if not always of the confluent kind.”

*The testimony of this reverend friar seems to render doubtful what has been said about the Georgians preserving the beauty of their girls by this invention. It is indeed by no means impossible, but that the Circassians are alone in possession of the secret, as the people of Wales are said to have had it exclusive of any other part of this island. One may even suspect that if the motive of our inoculating women-sellers was the making the most of this their staple commodity, they had sufficient inducement to conceal this lucrative practice from their neighbours. Yet, as the authors who named the Circassians as being possess'd of the method time out of mind, did the same honour to the Georgians and other nations upon the borders of the Caspian-sea, and as these authors belong to a nation which now, no less than in former times, deserves the appellation of Græcia mendax, I think it may be proper to suspend our judgment till we receive further informations about the true origin of this method.*

*London, April 17, 1755.*



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A  
DISCOURSE  
ON  
INOCULATION.

**T**HE small-pox, that cruel and loathsome disease, of which we carry the seeds in our blood, destroys, maims, or disfigures the fourth part of mankind. This scourge of the old continent, has depopulated the new, more than the sword of its conquerors. It is an instrument of death, and strikes without any regard to age, sex, rank, or climate. Few families escape paying the fatal tribute it exacts. It is chiefly in cities, and in the most splendid courts, that it makes the greatest havock,<sup>a</sup> and the higher the persons it attacks

<sup>a</sup> It is observed, that the small-pox is commonly more dangerous in cities, and chiefly to adults, and to children too tenderly brought up; whether this effect is owing to a different temperature of the air, to the nature of the food, or to some other cause, I shall not pretend to determine.

attacks are placed in life, the more dreadful are its strokes.

To stop the course of so many evils, Inoculation offers itself as a sure preventive, avowed by reason, confirmed by experience, permitted, nay authoris'd, by religion. Such a method surely deserves the countenance of a wise legislature, as tending both to the preservation and increase of mankind.

How far we are warranted to use and enjoy this blessing of providence, shall be the subject of the following inquiry, which may be divided into three parts. In the first shall be stated the chief historical facts relating to Inoculation. In the next shall be considered what objections have been, or may be raised against the practice of it: And in the last I shall draw some inferences from the principles established in the two first parts, and then venture a few observations of my own.



## PART I.

## HISTORY OF INOCULATION.

THE Inoculation of the small-pox by incision or puncture has been in use time out of mind in *Circassia*, *Georgia*, and the countries bordering on the *Caspian* sea<sup>b</sup>. Tho' it was in a manner unknown in *Europe*, it was nevertheless practised very near us in that part of *England* called *Wales*<sup>c</sup>. The same operation formerly known, but since disused, in *Greece* and *Turkey*, was revived at *Constantinople*, towards the end of the last century<sup>d</sup>, by a woman of *Thessaly*, who performed that operation with great success, though chiefly among the common people<sup>e</sup>. Earlier still, even in the beginning of the XVIIth century, <sup>f</sup> the small-pox was communicated in *China* without any incision,

<sup>b</sup> *Timoni's Letter*. See hereafter.

<sup>c</sup> Extract of some letters inserted by Dr. *Furin*, at the end of his letter to Mr. Caleb Cotefworth, &c.

<sup>d</sup> Anno 1673. See the *Treatise of Inoculation* by Dr. *Butini*. I can find this date no where else.

<sup>e</sup> *Pylarini*. See hereafter.

<sup>f</sup> Letter of father *d'Entrecolles*. See *Lett. édifiantes et curieuses*. Tom. XX.

cision, by snuffing up the matter of the pustules dried and reduced to a powder. All these facts lay buried in a total oblivion, when *Emanuel Timoni*, a *Greek* physician, and a member of the universities of *Oxford* and *Padua*, having undertaken to spread Inoculation and bring it into repute, gave a circumstantial description of it in a letter to *Dr. Woodward*, dated from *Constantinople*, *December 1713*. He declares, that after having closely attended that operation for seven or eight years, he found but two instances of ill success, and even these not to be imputed to the operation §.

*James*

§ Two children of three years old, both subject to epileptic and scrophulous disorders, who were inoculated by order of their parents, seemed to be cured of the small-pox, but died, the one of a bloody-flux, the 32d day, the other of a marasmus the 40th after the operation. The author adds, that the parents were suspected of having themselves designed the death of these children, whom their infirmities render'd troublesome. See the extract of *Timoni's* letter in the *Phil. Transf.* N°. 339. It is likewise to be met with, but without a date, abridged and worded differently in the appendix to *la Mottraye's* travels, who says, he had it from his friend, the author, in the month of *May* or *June 1712*. See vol. II. p. 115. of the *Hague* edit. in folio. In the *Acta Eruditorum* of *Leipsick*, of the month of *August 1714*, there is an extract of the history of Inoculation, by the same *Timoni*,



*James Pylarini*, another *Greek* physician, who had likewise been an eye-witness to the *Thessalian* woman's performing the operation at *Constantinople* from the year 1701, and had only yielded to the evidence of facts, after having long refused to approve of the practice, published the particulars of it in a pamphlet printed at *Venice*,<sup>h</sup> anno 1715, with the approbation and attestation of the inquisitor. This woman affirmed, that she had inoculated no less than six thousand<sup>i</sup> persons in the year 1713. Among these were most of the children of the *English*, *Dutch*, and *French* merchants<sup>k</sup> settled

*moni*, which is there supposed to have been lately printed at *Constantinople*. See likewise *Ephemerid. Naturæ curiosorum*, *Norimb.* 1717, *Cent. V. Obs. II.* communicated by the king of *Sweden*'s first physician.

<sup>h</sup> *Nova et tuta variolas excitandi per transplantationem methodus.* *Venetiis*, 1715, reprinted with the former at *Leyden*, 1721, and entitled, *Traſtatus bini de novâ variolas per transplantationem excitandi methodo.*

<sup>i</sup> *Butini*, *Traité de l'Inoc.* p. 87.

<sup>k</sup> It has been asserted upon too slight a foundation, that the *Turks* adopted this method, and that every *bashaw* in *Constantinople* had his children inoculated at the same time that they were weaned. The *Thessalian* woman performed her operation only upon *Greeks*, *Armenians*, or other *Christians*, either subjects of the *Grand Segnior*, or born in *Turkey*. *Pylarini*, positively declares, in his disserta-

settled at *Constantinople*, or rather in the suburbs of *Pera*, whom I have seen during my residence there in 1732, very thankful for having undergone this operation, and being secured, they and their children, from the danger and fatal consequences of the small-pox, and from the marks it usually leaves behind it. *Anthony le Duc* was one of them; he took his degree of doctor of physic at *Leyden*, anno 1732, and on that occasion publicly defended a thesis in favour of the *Turkish Inoculation*<sup>1</sup>.

We were long ago informed by the greatest writer of the age\*, that lady *Mary Wortley Montagu*, wife to the *British* ambassador at *Constantinople*, being convinced of the advantages of this method, had resolution enough, about the year 1717, to have her only Son, then six years old, inoculated in that city by her Surgeon; and that, after her return to *England*, she caused her

her  
 tion on Inoculation, that the *Turks*, from being too much attach'd to the doctrine of fatality, had not yet adopted this practice in 1715. *Soli Turcæ utpote fati decretis addicti minusque dociles hanc neglexerunt huc usque.*

<sup>1</sup> *Dissert. de Byzantinâ variol. insitione. Ludg. Bat. 1722.*

\* My author means MR. DE VOLTAIRE. See *Lettres sur les Anglois.*



her daughter to undergo the same operation. This example was followed among the people of quality. Soon after, at the request of the Royal College of Physicians in *London*, the experiment was made upon six malefactors, <sup>m</sup> who by this means redeemed their lives which they had forfeited to the law. The late queen of *England*, then princess of *Wales*, <sup>n</sup> inoculated her family under the direction of Sir *Hans Sloane* †. This brought the method into vogue and repute. However, this example, which any where else, would at once have settled and spread a practice so conducive to the good of mankind, rather obstructed its progress in a divided country, where reason, though supported by experience, is no sooner adopted by one party, but it is thwarted by the other. While the most eminent physicians in *England*, viz. *Sloane*, <sup>o</sup> *Freind*,

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<sup>m</sup> See Dr. *Jurin's* account.

<sup>n</sup> *Lettre de Mr. de la Coste à Mr. Dodard*, p. 39. Pref. to Dr. *Jurin's* work on Inoculation.

† The late prince of *Wales* was inoculated at *Hanover* by Mr. *Maitland*. The present prince had the disorder naturally. Prince *Edward* and Lady *Augusta* were inoculated from him. Three more of the same illustrious family underwent the operation last year, and all with the same success.

<sup>o</sup> The same letter of Mr. de la Coste to Mr. Dodard.

*Arbuthnot, Jurin, Mead, &c.* favoured the new practice, and wrote in its defence, and *Dr. Shadwell* tried it on his own children, two physicians but little known, together with an apothecary<sup>p</sup>, endeavour'd to raise their own reputation by running it down, and at the same time that the bishop of *Sarum*, with many of the clergy inoculated their own families<sup>q</sup>, other divines pretended that this operation did actually draw down the vengeance of heaven upon the nation. To prove their assertion, they alledged the proportionably greater numbers, who at that very time were carried off by the small-pox in the natural way, and one of them, in a sermon preached in *London*, affirmed, that the devil himself had given *Job* the small-pox by this infernal invention<sup>r</sup>.

It was nevertheless certain, that, besides the trials made at *Constantinople*, where in one year 10,000 persons of all ranks had been inoculated with great success,<sup>s</sup> vast numbers had, with the like success, undergone the same operation in *England*. *Dr. Jurin*, secretary to the *Royal Society*, published in 1724, a particular account of the experiments

<sup>p</sup> *Dr. Blackmore, Dr. Wagstaff, and Mr. Maffey.*

<sup>q</sup> *Letter of Mr. Amyand in Mr. de la Coste's letter,*  
p. 69.

<sup>r</sup> *Ibid.* p. 51.

<sup>s</sup> *Ibid.* p. 68.



experiments made in *Great Britain*, together with some letters by way of supplement and proof. It follows from his computations, confirm'd by those made since, both at *London* and in the country, where the disease is thought less dangerous, that there died commonly one in seven, in six, nay even in five, of those who were seized with the natural small-pox<sup>t</sup>, and that out of ninety-one inoculated, scarce one died, and of the few who did, it could not be well proved that this misfortune was the effect of the operation. Yet at that time the Method itself was not brought to its present perfection, as, at first, many experiments were tried upon infirm and ill prepared subjects. These were the disadvantages of the method as it was practis'd at *Boston* in *New-England*, where out of 300 patients inoculated, without distinction or sufficient care, and at a time when the distemper was epidemical and the heats violent, five died, or one in sixty<sup>u</sup>, though it is not even certain that they died of Inoculation. It was however asserted, that one out of 49 was lost, and the fatal lot having fallen upon some families

<sup>t</sup> Dr. *Jurin's Account*, Lond. edit. 1723, and *French translation* by Mr. *Noguez*.

<sup>u</sup> *Account of Inoculat.* by *Jurin*, p. 19.

families of distinction<sup>w</sup>, this gave weight to the clamours of prejudice. The civil magistrate interfered, it was made a party-affair, and the operation was laid under restraints little less than a prohibition. It was given out, though never proved by one single instance, that the artificial method did not secure from the natural disease. The wisest and coolest heads therefore concluded, that it was prudent to wait for such light as time and a longer experience would afford.

*France* had been made acquainted with the first success of the new method, in a letter of *Dr. la Coste* to *Dr. Dodard*, first physician to his most christian Majesty. This letter was published at *Paris* in the year 1723, with licence, and with the approbation of *Dr. Burette* of the faculty of *Paris*. It is said in that piece, that nine of the principal doctors of the *Sorbonne* were consulted, and that the author had at last the satisfaction to see them agree in this conclusion, *that for the benefit of the public it was lawful to make trials of this Method.* It is also affirmed in it, that *Dr. Dodard*, and many of our most celebrated physicians, such as the late *Dr. Chirac*, who succeeded

Dr.

<sup>w</sup> See *Dr. Kirkpatrick's Analysis of Inoculation. Lond.* 1754, P. 109.



Dr. *Dodard* as first physician to the king, and Dr. *Helvetius*<sup>x</sup>, first physician to the queen, both members of this academy, approved of the method. To our same work was subjoin'd, an extract of a letter of Dr. *Astruc*, then professor at *Montpellier*, and now of the Royal College, and consulting physician to his Majesty, wherein this learned Gentleman declared that, *he did not think there could be any danger in the operation, and seem'd very desirous that it might be introduced at Paris.*

About the month of *July 1724*,<sup>y</sup> Dr. *Noguez* of *Paris*, obliged the world with a translation of Dr. *Furin's* book, to which he prefixed an apology in favour of Inoculation. The whole was well received by the public; but the method had the year before met with a considerable check.

### The

<sup>x</sup> Dr. *Helvetius*, says Dr. *de la Coste*, in his letter to Dr. *Dodard*, p. 54. *did me the honour to write to me, that he thought this method very useful and beneficial to the state, and that he should be obliged to me for naming him as one who earnestly wishes experiments may be made, and is persuaded they will be successful.* I know several distinguish'd physicians who are of the same opinion, viz. Dr. *Falconet*, Dr. *Vernage*, &c.

<sup>y</sup> The approbation to the book bears date the 3d of *July 1724*, but it was not publish'd before 1725.

The bad success at *Boston*, during the summer of the year 1723, had been exaggerated, and the number of those who died the same year of the natural distemper, then violently raging in *London*, was falsely charged upon Inoculation<sup>z</sup>. This weakened the confidence people began to have in this operation. The like rumours were propagated at *Paris* just as they were about making experiments, which, after the success they had been attended with in *England*, and chiefly in the Royal Family, it was high time to make, at least, in the hospitals. They would have been encouraged by a prince<sup>a</sup> the protector of learning, of arts and sciences, which he loved and cultivated; but no sooner were his eyes closed, than a thesis was maintained in the physic schools<sup>b</sup>, which founded the alarm against Inoculators. The operation was called criminal, those who performed it impostors and executioners, and the patients dupes.

The

<sup>z</sup> An account, &c. by Dr. *Jurin*, p. 30. *Lond.* 1724. Translat. of Dr. *Noguez*, p. 63.

<sup>a</sup> The duke of *Orleans*, regent of *France*, who died *Dec.* 3, 1723.

<sup>b</sup> *An variolas inoculare nefas?* *Questio Medica*; in *Scholis Medicorum*, 30 *Dec.* 1723.



The strongest marks of prejudice, and passion appear in this work. It is a declamation equally violent and unsupported by proofs, and plainly intended to interest morality and religion against this new method. No physician of the faculty of *Paris* had openly declared in favour of Inoculation, and consequently none was personally concern'd in the support of it. Facts and accurate informations were wanting to oppose to the new objections. Dr. *Jurin's* book was not then published; and the fear of making themselves answerable for any bad accident, undoubtedly prevented our most eminent physicians from attempting to stem the torrent. Nine doctors of the *Sorbonne*, as I have already observed, had, after mature examination, decided in favour of the trials; and the approbation given by an Inquisitor to *Pylarini's* book seem'd alone sufficient to satisfy the most scrupulous. But with some people, any remedy coming from *Turkey*, and well received in a protestant country, does not so much as deserve an examination. Be that as it will, the too common prejudice against whatever is singular and new, got the better of reason.

Soon after, the celebrated *Hecquet*, that most declared enemy to novelties in physic, published an anonymous book, in which nothing appears moderate but the title, *viz. Doubts about Inoculation*. It is well known to what excess this, otherwise respectable, man carried his prejudice and obstinacy. I have not, I must own, been able to go through the whole dissertation. Let those blame me who have attempted it as well as myself. We are not to wonder that the Inoculation of a distemper in a human body, should appear criminal to him, who seems not to think the practice of it on trees altogether warrantable. His chief arguments against it are these: “Its antiquity is not sufficiently ascertained; the operation rests upon false facts; it is unjust, void of art, destitute of rules; it doth not carry off the variolous matter; it has a double stamp of *reprobation*; it runs counter to the Creator’s views; it doth not prevent the natural small-pox; it is contrary to the laws; it bears no likeness to physic, and favours strongly of magic.” This is a specimen of the book, and of the reasoning of our most learned and celebrated anti-inoculator. The approbation of Dr. *Burette*,  
the

\* *Raisons de doutes contre l’Inoculation.*



the royal censor, deserves notice ; he declares the work, with the observations it contains, *to be perfectly consonant to the ancient medical practice.*

The concurrence of so many unfavourable circumstances occasioned Inoculation to be in a manner universally forgot, till the year 1738<sup>d</sup>. From that time the history of this method has been almost unknown in *France* ; the publick news-papers, and all our literary journals, have for these thirty years past been silent on this head ; and I am daily surprized to see persons who are far from being ignorant in other respects, so perfectly unacquainted with the present state of Inoculation, that their latest accounts of it are those unjust rumours spread in the years 1724 and 1725. Some have I heard say, with that easy careless manner of people unacquainted with facts, that this practice is now discarded in *England* ; whereas nothing is more certain, than that it is there in greater vogue than ever. This is not the only instance that shews how little we generally are informed at *Paris* of the most useful discoveries that are made abroad, tending to the improvement of science, and the good of mankind. What I have farther to offer

<sup>a</sup> *Kirkpatrick's Analysis.*

concerning the history of Inoculation, cannot therefore but appear new to most of us.

While this practice seemed to lose ground in *Europe*, it spread in *Asia*; the epidemical disease of 1723, which cruelly infested both *Europe* and *America*, probably went round the globe; and this is not the only example of a similar progress<sup>e</sup>. The *Tartars*, among whom the small-pox is no common distemper, were infected with it, and it proved fatal to most of their adults. Father d'*Entrecolle*, a Jesuit missionary at *Pekin*, relates<sup>f</sup> that in the year 1724, the emperor of *China* sent physicians from his own palace into *Tartary*, to sow the artificial small-pox. This is the name the *Chinese* give to their method, of which we intend to say something hereafter. The success, no doubt, answered their expectations, since they returned home with great numbers of horses and skins, the only money of the *Tartars*.

On the other hand, the practice of *European* Inoculation was improved during the time of its disgrace; its progress was less known, but it still extended itself in both parts of the world.

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<sup>e</sup> See *Journ. Hist. du Voyage à l'Equateur*. Paris 1751, p. 103 & 104.

<sup>f</sup> *Lett. edifiant. et curieuses*. Tom. XV.



I have elsewhere mentioned<sup>§</sup> in what manner a Carmelite missionary, near the *Portuguese* colony of *Para* in *South America*, seeing, in the year 1728 or 1729, the Indians of his mission carried off, one after another, by an epidemical small-pox, without any one's escaping; and having already lost one half of his flock, saved the remainder by venturing to perform upon them the method of Inoculation, of which he had got but a very superficial knowledge by one of the news-papers of *Europe*; and that his example was followed, with the same success, both by one of his fellow missionaries on the banks of *Rio-negro*, and by some *Portuguese* inhabitants of *Para*. I have since heard, that on a like epidemical small-pox breaking out in 1750, and ravaging that province, the artificial insertion was attended with the same success.

But Inoculation had for several years before got the better of prejudice in *New-England*. A dreadful epidemical small-pox raged in *Carolina* in 1738; every one of the patients died. The inhabitants then began to call to mind the usefulness of the remedy which they had formerly condemned; recourse

<sup>§</sup> *Account of a Voyage to the River of the Amazons*, Paris 1745. *Mem. of the Acad. of Scienc.* 1745.

course was had again to Inoculation, which proved more successful than ever, since during the heats of the months of *June*, *July*, and *August*, the most fatal to inflammatory disorders, and in a country where Inoculation never succeeded so well as in *Europe*; of 1000 persons inoculated, eight only died, or one in 125<sup>h</sup>.

This late success of Inoculation in *Carolina* during the year 1738, does not however come up to what it was attended with, when it was resumed in *England*; of near 2000 that have been inoculated in a period of twelve years at *Winchester*, and in the counties of *Suffex* and *Hants*, &c. Dr. *Langrish* says there died only two breeding women, whom the physicians would have dissuaded from the operation<sup>i</sup>.

In the year 1746, a new hospital was erected in *London*, intended as well for inoculating the poor, and lessening by that means the numbers that are daily swept away by the small-pox, as for the benefit of those who have it in the natural way. On this occasion the bishop of *Worcester* preached a charity sermon in 1752 in favour of the operation, which twenty years before had been called, in the same pulpit, a work of the devil.

<sup>h</sup> *Analysis of Inoculation*, p. 110, 111, &c. <sup>i</sup> *Ibid.*



devil. His lordship mentions several experiments, and says, that of 1500 persons inoculated by three different practitioners, three only died, as did the like number out of 309, mostly adults, that underwent the operation in the new hospital. Mr. *Winchester*, surgeon to the Foundling-hospital, lost but one of 186 inoculated children; of 370 cases in his private practice, only one was unsuccessful; and Mr. *Frewin* of *Rye* declares, that having inoculated upwards of 300 people, he had had but one miscarriage. At *Salisbury*, four died of 422; and at *Blandford*, three of 309.

In the month of *November* 1747, Mr. *Ranby*, his *Britannick* Majesty's principal sergeant surgeon, had inoculated 827<sup>i</sup> persons without losing one. The number amounted in 1752 to upwards of one thousand, and still not a single miscarriage<sup>k</sup>. The difference of the success may be imputed to the various degrees of malignity in the reigning distemper, which must affect more or less the matter made use of for Inoculation; to the several methods of preparing and treating

<sup>i</sup> This fact was communicated to the author in a private letter from Mr. *Trembley*.

<sup>k</sup> See the bishop of *Worcester's* sermon. In 1754, Mr. *Ranby* had not had one single miscarriage in 1200 cases; and Mr. *Middleton* but one in 800.

ing the patients; to the different degrees of skill and experience in the inoculators; but principally to the observance or neglect of the maxim, not to venture Inoculation upon subjects ill-disposed, unhealthy or suspected of having other disorders. This last caution the *Grecian* woman at *Constantinople* is said to have scrupulously observed, and to this she attributed her success.

In summing up all the foregoing facts, it appears, that out of 6398 persons inoculated in *England*, but 17 are suspected to have died of the consequences of the operation, which is only one in 376\*.

In the year 1750, the example of one of the principal magistrates introduced the practice of Inoculation into a commonwealth, where manners and arts are equally improved, and where zeal for the public good is a  
virtue

\* I acquainted the ingenious author with a mistake he had made in the former calculations. He owned it, and gave me leave to make what alterations I might think proper. I chose however to leave the numbers as they stood in my friend's original, upon his observing to me, that since the publishing of his discourse, so many new trials have been made, and all favourable to the method, that there is no need to alter any thing in the conclusions. But I can't help thinking Mr. *la Condamine's* proportion full large; and I am inclined, after a mature examination of all the facts that are come to my knowledge, to reduce it to that of one in a hundred.



virtue common to all the citizens. No fatal accident has hitherto made them repent taking this step, as may be seen by a succinct and accurate treatise on the artificial small-pox, of which I have seen no account in any of our literary journals. The author is Dr. *Butini*, doctor of physic of the faculty of *Montpellier*, and received at *Geneva*. I have borrowed many observations and facts from it, as also from Mr. *Guyot's* memoir inserted in the second volume of the *memoirs of the royal academy of surgery*, and from a letter of this last-mentioned gentleman, which was communicated to me.

Dr. *Kirkpatrick* has just now (in 1754) published at *London* a new *Analysis of Inoculation*. In this treatise, which is dedicated to his Majesty the King of *Great-Britain*, the author recapitulates all that has been wrote in *England* for and against the method. He adds his own remarks on the subject, and answers all the objections. I have already mentioned several of his observations.

I am just now informed that Inoculation is actually gaining ground apace in *Holland*, and that Dr. *Tronchin*, a gentleman of *Geneva*, and a celebrated physician at *Amsterdam*, practises it with such success, that were

it not for popular prejudice, not yet sufficiently subdued, it would lately have been countenanced by the most illustrious examples\*.

Such have been, in the course of thirty years, the various vicissitudes of the famous method of Inoculation. Emetics and the bark underwent no less opposition, before their usefulness was generally acknowledged.

But before we proceed, it will be proper to give a distinct notion of the method, and of the different ways of practising it, to those who are but imperfectly acquainted with it. This is indeed an essential part of its history.

The artificial small-pox is probably more ancient in *China* than any where else. Father d'Entrecolles, in his very curious letter<sup>1</sup> dated from *Peking* the 11th of *May*, 1726, observes, that if that method had been brought into *China* from *Circassia*, or from any of the neighbouring countries, it would probably have spread first in the western parts, which  
are

\* The author certainly means the family of the Stadtholder. By some informations I have been favoured with from the learned professor *Schwenke* at the *Hague*, I find that this gentleman was equally industrious and successful, last autumn, in his practice of Inoculation, upon several persons of the first distinction in that town, and that he was engaged this spring to perform the same operation upon many more.

<sup>1</sup> *Lett. edif. et cur.* Tom. XX.



are nearest to the *Caspian* sea ; whereas it is in the province of *Kiangnan* on the *Japan* sea, the opposite extremity of the empire towards the East, that the method of *Tchang-teou*, or of sowing the *small-pox*, was most antiently known. It consists in conveying up the nostrils of children a pellet of cotton impregnated with the powder of the dried matter of variolous pustules. This method was tried in *England* on a girl condemned to death <sup>m</sup>. She suffered more than the other malefactors who were inoculated in the usual way ; and the *Chinese* practice, for which *Father d'Entrecolles* gives three different receipts, was judged to be dangerous <sup>n</sup>.

In *Greece*, as well as in *Turkey*, they applied the matter, still warm and oozing from pustules of a natural and safe sort, to eight or ten punctures made in different parts of the body. The operation was accompanied with many superstitious ceremonies, and with the oblation of wax tapers. *Dr. Timoni* suspects that by means of these the *Greek* inoculating woman ingratiated herself with the clergy, who supplied her with a prodigious number of subjects to inoculate <sup>o</sup>.

E 2

Much

<sup>m</sup> *Butini, Traité de l'Inoculation*, p. 98. <sup>n</sup> *Ibid.* p. 86.

<sup>o</sup> *Quin et forte tributo cereorum clerum sibi conciliat. innumeros enim quos inoculet eosque commendatos ab ipsis sacer-*

Much less preparation was used in *Wales*; school-boys there would give themselves the small-pox by pricking one another with a needle dipt in the matter, or merely by rubbing their arms or hands, till the blood came out, against the variolous pustules that were beginning to dry off<sup>p</sup>. One lad used to purchase the infection of another for the value of two or three pence; and this custom went by no other name in that country but that of *buying the small-pox*. In *England* experience has procured the preference to the following method, practised long ago by Mr. *Ranby*, and since followed at *Geneva* with the greatest success, both upon children and grown people to the age of thirty<sup>q</sup>.

<sup>r</sup> The patient is prepared for a few days by a proper diet, and suitable medicines, one or two gentle doses of physic, and, if needful, by a bleeding; after which an incision an inch long is made in both arms, in the middle and external part under the tendon of the deltoid muscle. This incision barely divides

*sacerdotibus Græcis quotidie habet, ita ut vix possit multitudini sufficere. Dissert. hist. du Doct. Timone. See Appendix des Voyages de la Mottraye, Tom. II.*

<sup>p</sup> See the letters collected by Dr. *Jurin*.

<sup>q</sup> Mem. of Mr. *Guyot* in *Mem. de l'Acad. de Chir.* Vol. II.

<sup>r</sup> Mr. *Ranby's Latin Letter. Butini, Traité de l'Inoculation.*



divides the skin, and leaves the motions of the arm intirely free<sup>s</sup>. Then they put in a thread of the same length, impregnated with the matter of a ripe pustule without any redness at the basis, and taken from a healthy child with a good kind, either natural or artificial. It has been found that this matter preserves its efficacy for many months, from Autumn till Spring. The pledget is removed after forty hours, and the wounds are dressed once a day. Though the patient finds himself able to go out the first days after the operation, yet he is confined to his room and to his diet. The sixth or seventh day, when the fever comes on, he is put to bed. This fever is seldom attended with any accident, and all the symptoms cease at the time of the eruption on the seventh or eighth day, and are of no consequence. Then the inflammation of the cuticular incisions begins to abate, the wounds discharge more matter, and a great part of the venom goes off that way. The tenth day after the eruption the wounds begin to incarn, the fifteenth they cicatrise, and they are usually healed by the twentieth; but if they hold out longer, they

<sup>s</sup> Dr. *Timoni* had already substituted the incisions in both arms to the punctures which the *Greek* woman made in several parts of the body. See his Letter, *Append. des Voyag. de la Mottraye*,

they must not be healed up too fast. One incision has been thought sufficient; and the reason that two are made, is not so much from any doubt of the insertion having taken effect, as to procure by the means of two outlets an easier discharge of the variolous matter; to lessen the acrimony and corrosiveness of that which fills the pustules, and to render the nature of the small-pox kinder. Theory in all this agrees perfectly well with practice.

Sometimes all, or almost all, the venom runs off through the two openings; the patient then has but one or two pustules, and sometimes not one. He is however not the less clear of the seeds of the small-pox, nor the less safe from a fresh infection. The greater the discharge is from the wounds of the arms, the fewer and more distinct are the pustules. In the natural small-pox, each particle makes an abscess; by which means the distemper often grows confluent, and of course more dangerous. Among all the cases of Inoculation at *Geneva* \*, there is hardly

\* In a letter which I received from Dr. *Butini*, dated *Geneva* the 8th of *November* last; this learned gentleman mentions, that he has sometimes, tho' seldom, observed the secondary fever in some cases of Inoculation, but that it always was slighter than in the natural disorder,



hardly one of this sort, and none of the patients have been pitted. The same was found true not only in *England*, but in *Greece* and *Circassia*<sup>t</sup>, where the inhabitants are said to have adopted the practice to preserve the beauty of their daughters. This observation admits hardly of any exception, unless when the patients scratch themselves, or have been ill prepared.

The greatest danger of the small-pox in the natural way, is the second fever which comes on at the time of the suppuration. In the artificial small-pox, this fever happens very rarely, especially among children, who are hardly ever sick. Of twenty persons inoculated at *Geneva* by Mr. *Guyot*, the only one who had this fever, was a woman who had had several children<sup>u</sup>.

I have dwelt the longer upon the historical part of Inoculation, as the narrative of facts is sufficient to obviate most of the objections I am now going to consider.

PART

der, and never attended with any accident. He adds, that the method gains every day more ground at *Geneva* and at *Lausanne*; and that out of eighty-five persons inoculated in these two places, not one has died, nor even been in danger of dying. The original of this letter is inserted in the *Journ. Britan.* for Jan. and Feb. 1755.

<sup>t</sup> *Timoni, Pylarini, Furin, La Coste, &c.* See *Mottraye's* Voyag.

<sup>u</sup> See *Mem. de l'Acad. de Chirurgie*, Vol. II.

## PART II.

## OBJECTIONS ANSWERED.

**T**HES E objections, however weak they be, we must not disdain to answer, since it is only by a solid confutation of them that we can acquire any right to treat them with contempt.

Can it be seriously asked, whether it is a crime to save the lives of millions, because it is possible that two or three out of each thousand could not be preserved? To this problem may be reduced the thesis published in 1723<sup>w</sup>, wherein the physician assuming the province of the divine, pronounced Inoculation to be unlawful, by the same right that the divine might have had to declare it unwholesome.

Objection I. *Is it the genuine small-pox that is convey'd by Inoculation, or is it not a distemper more dangerous than that you would avoid?*

*Answer.* The first part of this objection has been answered by those who started it, not without evident marks of their want of candour. They are willing to grant that the

<sup>w</sup> *An variolas inoculare nefas?*



the artificial small-pox is the true distemper<sup>x</sup>, provided you will allow that it is more malignant and contagious than the natural. The objection, thus stated, we have already sufficiently answered, by shewing both from reason and facts, that an infection designedly communicated, with all the preparations and cautions taught by art and practice, with a proper choice of age and disposition of body and mind, time and place, and of the variolous matter; that such a small-pox cannot fail of being, as it actually is, kinder, and of course less dangerous than an epidemical distemper caught by chance, and under circumstances that may increase the danger. Is it conceivable that the matter for Inoculation, chosen from the best sort, can produce worse consequences than that which destroys the seventh, the fifth, the fourth, nay sometimes the third part<sup>y</sup> of those who have it in the natural way? Was not the contrary evident, even in less successful trials, since our adversaries have owned, that even at those times when the small-pox was most fatally epidemical, Inoculation did not carry off more than one in fifty<sup>z</sup>, whereas the natural di-

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stemper

<sup>x</sup> Kirkpatrick's *Analysis*, &c. p. 100.  
land's *Letter in that of Dr. La Coſte*.  
*count*.

<sup>y</sup> See Mait-  
<sup>z</sup> Jurin's *Ac-*

stemper would have destroyed at least one in five?

Objection II. *Does Inoculation prevent the natural infection?*

*Answer.* Facts are the best answer to this objection. For these thirty years past, the effects of Inoculation have been attentively observed; all the cases have been carefully discussed, and not one example, properly attested, has been produced of an inoculated person catching the small-pox a second time<sup>a</sup>. This truth the enemies of the practice have, by all means, even by those of imposture, endeavoured to render doubtful<sup>b</sup>. Dr. *Netleton* was obliged publickly to contradict a rumour falsely spread of a patient, inoculated by him, having had afterwards the natural distemper, and been very ill of it. A like story was again propagated, and a letter of one *Jones* produced, who affirmed the same thing to have happened to his son. But upon Dr. *Jurin's* enquiring strictly into the matter of fact, the father refused to let him see his son's scars; he afterwards offered to discover the whole truth for a sum of money; and at last he confessed, in a letter to the doctor, that he did not so much as know  
what

<sup>a</sup> Timoni, Pylarini, Jurin. *Letters of Richard Wright and Perrot Williams.*

<sup>b</sup> Kirkpatrick, p. 121.



what Inoculation meant. Dr. *Kirkpatrick* has inserted this letter in his work <sup>c</sup>.

After all this, it would be of little importance to enquire, whether a person may have the natural and true small-pox twice. Supposing even this to be true, which yet is contradicted by many physicians, it would not necessarily follow, that there is the same danger of a relapse after Inoculation: For though it may be conceived, that in some particular cases the natural infection does but imperfectly unfold the variolous stamina, so that there may still remain a sufficient quantity for a second fermentation, yet it may be affirmed, with great probability, that the variolous ferment being set a working by one of the same kind, directly conveyed into the blood by means of several incisions, is so thoroughly subdued, that a second fermentation cannot ensue; a greater cause must produce a greater effect; milk does not coagulate so soon, and so effectually, by the natural power of the air and heat, as by the immediate mixture of an acid: And in the like manner the artificial small-pox may exhaust the stamina more effectually than the natural. But setting aside all those arguments which may possibly be controverted,

<sup>c</sup> *Kirkpatrick*, p. 123.

it is sufficient for removing all fears of a second infection after Inoculation, that for these thirty years and more, since the operation has been practised in *England*, not one instance can be produced of a person once inoculated, ever catching the small-pox again, either by contagion, or Inoculation.

Inoculated children have been frequently suffered to keep company with others that had the natural disease, without ever catching it again<sup>d</sup>.

*Elizabeth Harris*<sup>e</sup>, one of the six criminals on whom the experiment was first made, after her recovery, nursed more than twenty persons under the small-pox, and yet suffered nothing from the infection.

They likewise tried to inoculate another prisoner, who had had the small-pox in the natural way, but without any effect, though they made use of a greater quantity than usual of the variolous matter<sup>f</sup>.

The operation has been repeated more than once upon several subjects,—but always without effect\*.

Dr.

<sup>d</sup> *Kirkpatrick*, p. 120.

<sup>e</sup> *Ibid.*

<sup>f</sup> *Ibid.* p. 119.

\* I lately tried this experiment upon myself, and the event was the same, *viz.* the infection, though conveyed by means of two incisions, had no effect upon my blood, as it had been sufficiently defecated fifteen years before



Dr. *Kirkpatrick* <sup>s</sup> relates a remarkable story of a young lady of twelve years of age, who after having been inoculated and quite recovered, had a fancy to try whether she could catch the small-pox again. She accordingly, unknown to the family, made a fresh incision, to which for three days successively she applied some matter which she procured by means of a female friend, who probably was not very nice in the choice. About the eighth day she felt a slight head-ach, which presently alarmed her, and made her confess what she had done. But after lying down a little in her cloaths, she sprung up, saying, *she would not be sick any longer*. Her head-ach went off, and she had no fever, nor the least eruption.

The honourable Mr. *John Yorke*, fourth son of the Lord High Chancellor of *Great-Britain*, being come to *London* from the university at the age of twenty, it was thought proper to give him the small-pox by Inoculation, to prevent his catching it in the natural way. Mr. Serjeant *Hawkins* performed the operation, which brought

on, before by the natural small-pox. The particulars of this trial may be seen in the *Journal Britannique* for *Nov.* and *Dec.* 1754.

<sup>s</sup> *Kirkpatrick*, p. 120.

on, at the usual time, the inflammation and suppuration of the wound, the swelling of the arm, the sickness, fever, and all the symptoms of the small-pox, but without any eruption. The want of this engaged Mr. Yorke, though he was assured that the operation had had its full effect, to have it repeated; but this repetition was intirely ineffectual, the wound healing up immediately as a mere scratch.

Objection III. *The small portion of venom, which is conveyed into the blood by Inoculation, may serve as a vehicle to transfuse the seeds of some other distemper at the same time, such as the scurvy, king's-evil, &c.*

*Answer.* The danger here apprehended, is as great in the natural as the artificial small-pox, and yet there is no instance of these distempers having been ever communicated by either; though if there were, Inoculation would still have this advantage, that we are at liberty to make the infection as little dangerous as possible, by taking the matter from a healthy child, who has no distemper but the small-pox.

Objection IV. *Inoculation will sometimes leave bad remains, such as sores, tumors, &c.*



This objection hardly deserves an answer. Such accidents are indeed but too common after the natural small-pox, but extremely rare after Inoculation; and for one example which may be alledged, though even that ought to be imputed to the imprudence of the patient, or the unskilfulness of the surgeon, we hear of many and more dangerous accidents occasioned by mere letting of blood. The latter practice must therefore be proscribed, before we proceed to banish Inoculation on this account.

Objection V. *The giving a distemper, or preventing it in one, who in the order of providence was destined to have it, is an usurpation of God's right.*

*Answer.* This is the objection of Fatalists and rigid Predestinarians. Does a reliance upon providence, imply that we are not to prevent those evils which we foresee, and which we have it in our power to guard against by prudent precautions? They who maintain this principle, must, if they act consistently, prohibit preservatives in general, and all remedies which tend to lessen the malignancy of any distemper; they must follow the example of the *Turks*, who, under pretence of casting themselves on providence, perish by thousands of the plague,

fo

so frequent in *Constantinople*, while they see the *Franks*, who are settled among them, preserving themselves from the fatal effects of the contagion, both in town and country, by shutting themselves up in their houses, and carefully avoiding all outward communication. I would ask those who in this case stand up for the rights of divine providence, whether, when our Maker permits the discovery of a sure method for preserving ourselves from the devastations of the small-pox, he forbids our making use of it? God offers us the remedy; is it not offending him to reject his gifts with disdain? We now come to the most common and most illusive objection.

Objection VI. *It is not lawful to give a cruel and dangerous distemper to one who perhaps would never have had it.*

*Answer.* Let us begin by stripping this objection of its fallacy and hyperbole.

*First,* It cannot be truly said that the inoculated small-pox is either cruel or dangerous. An incision which hardly divides the skin, and may rather be called a scratch; a slight fever, attended with some few symptoms, which scarce last 24 hours, cannot sure be called a cruel disease; nor can a distemper be called dangerous, which does



not carry off one in 300, as has been already proved, perhaps not one in a thousand, as we shall shew hereafter<sup>h</sup>.

If on the first trials made in *Europe*, and in *America*, before Inoculation was brought to perfection, sometimes one patient died out of 64, as at *Boston*, in an unfavourable season, and by the neglect of the necessary preparations, according to Dr. *Jurin*; if it were true that sometimes one in fifty has died; and

<sup>h</sup> What has been affirmed by the *Greek* physicians, *Timoni*, *Pylarini*, and *Le Duc*, concerning the prodigious success of Inoculation in *Turkey*, might appear suspicious, but it is now rendered credible by all the experiments since made in *England*, where the small-pox is often dangerous, and the climate less favourable for Inoculation than that of *Constantinople*. — These three *Greek* physicians, of different ages, and interests, and who have not cited each other in their writings, assure us severally, that after many years enquiries, and repeated experiments which they were eye-witnesses to, they never could find that any ill consequences attended this operation. They were moreover persons who deserved the highest credit. *Pylarini*, a native of *Cephalonia*, of a noble family, was first physician to an emperor of *Russia*: he distinguished himself by his learning and by his writings: he protests, that for a long time he felt a reluctance to this practice, and only yielded to the evidence of facts. His dissertation shews, that he was neither credulous, nor meanly versed in physics. He had taken his degrees very young at the university of *Padua*. See *Hom. Ill. du P. Nicéron*. *Timoni* had likewise taken his degrees at *Padua* and *Oxford*: he

and granting, what on a careful examination of all the circumstances<sup>i</sup> would be hard to prove, that they died of Inoculation; yet still I affirm, that the very small number of accidents it is charged with by its most inveterate enemies, is a demonstrative proof that the operation itself cannot be dangerous: for what indeed is one unsuccessful case to 49 that succeed? Besides, it cannot be denied but that of these 50, eight or ten at least would probably have died in the natural way, and that only one dies under Inoculation. And this is what they are pleased to call a diabolical operation.

I cannot forbear making an observation, which has, I think, escaped every one else who has wrote upon this subject, which is, that it is highly unjust, tho' usual, to charge

Inocu-

was fellow of the Royal Society, and refused to be the Grand Signior's physician: he had for ten years together attended the progress of this operation, and been greatly concerned in it. *Acta Eruditorum Lipsiæ, Feb. 1722.* Anthony le Duc, who appears by his name to have been of French extraction, was born at Constantinople, and had been inoculated there. He took his doctor's degree at Leyden in 1716, and held a thesis in that university in favour of Inoculation. His dissertation was printed at Leyden in 1722, together with those of James de Castro and Walter Harris, both of the College of Physicians in London.

<sup>i</sup> See *A Letter written from Boston to Caleb Cotefworth, and inserted in Dr. Jurin's Account.*



Inoculation with having destroyed all those who die within forty days after the operation. Is there any one man, ever so healthy and strong, whose life can be depended upon for forty days? Of 800,000 inhabitants, according to the common computation in *Paris*, 20,000 die every year, and consequently 2500 in six weeks, which is  $\frac{1}{320}$ . Therefore of 320 persons taken at a venture, it is probable that one at least will die within 40 days.

It follows that of 320 inoculated persons of all ages, one is to die within that term, unless it be pretended that this operation lessens the degree of probability of a natural death. But surely they who are driven to this supposition, are not aware of its absurdity; since, if Inoculation secured a man's life for 40 days, a scratch repeated every six weeks would render him immortal.

Thus it appears that the inoculated small-pox is neither dangerous nor cruel, as this objection supposes. *But, it will be said, you cannot deny but it is a distemper; why then should we designedly give it to one who perhaps would never have had it?* This is the most specious argument that can be urged

against this practice, and yet the easiest to confute.

I answer first, that this distemper is not given to one who would never have had it, since they only who are susceptible of it, can catch it by Inoculation, as is evident from all the experiments that have been made to verify this fact<sup>k</sup>. He who has not in his constitution the seeds of the small-pox, will come off with a slight operation, less painful than bleeding; the incisions will dry up like a common cut, and he will be for ever delivered from those continual and terrifying apprehensions they live under, who have not had it<sup>l</sup>. This trial will warrant his being for ever proof against the infection; nay, it is the only way to satisfy those who are not sure they have had the genuine small-pox, or who being in doubt whether they have had it in their infancy, spend all their days in such a constant uneasiness, as makes their life a burden.

Secondly, I answer with that learned prelate, who published a sermon in favour of Inoculation, that the small-pox is a distemper

<sup>k</sup> *Jurin, Butini, Kirkpatrick.*

<sup>l</sup> I have received undoubted intelligence of the child of an *English* colonel settled at *St. Quentin* in *France*, upon whom Inoculation has been thrice performed, but always without effect.



per which may be said to be general, and to which providence hath been pleased to subject the human species; and that the number of those who attain to the natural period of human life without having it, is so very small, as hardly to stand in exception to the common law; that it is with Inoculation as with a fit of the gout, which is purposely raised, when the particles of that painful disorder lye scattered through the whole mass of blood<sup>m</sup>. In both cases we do not so properly give a distemper to a body that was free from the danger of it, as we chuse the most favourable time to purge off the ferment that occasions it, and which we carry in our blood. Now as this crisis is almost unavoidable, it becomes much more dan-

<sup>m</sup> *The aim of the previous method is this, viz. after due preparation, in a known, visible manner, to raise that commotion in the blood, which sends forth into the surface of the body the latent materials of this distemper so very dangerous, when excited in the common way by infectious particles unperceived. It seems therefore (like the raising a fit of the gout, when the particles of that painful malady are dispersed through the whole mass of blood) not so properly the giving a distemper to a human body intirely free from, and out of danger of that distemper, as chusing the safest time and manner of causing a disorder otherwise almost unavoidable in a way extremely more pernicious, the fuel thereof being lodged within us.*  
Bishop of WORCESTER'S Sermon, 7<sup>th</sup> Edit. p. 12, 13.

dangerous when it rises of itself, and in a time of epidemical contagion, when it sometimes appears with equivocal signs that disguise it, and expose the patients to the danger that a mistaken method of cure may occasion.

The authority of a bishop of the church of *England*, ought, in the present case, to lose nothing of its weight with catholic divines; and the less so, as the doctrine of absolute predestination, which though adopted by few, is still retained in the articles of that church, is much fitter than the catholic tenets to furnish specious arguments against the practice of Inoculation.

From all the foregoing considerations, it appears that this last objection, which rested upon several false suppositions, bears now quite another aspect. Reduced to its real value, it amounts to this:

*Is it lawful to secure any one, for life, from a violent and almost unavoidable disease, by making him contract, with the most prudent precautions, and under the care of a skilful physician, a slight disorder, a hundred times less (if at all) dangerous? I ask, in my turn, whether there be two ways of answering this question?*

*But,*



*But, say they, it is not lawful to do ever so small an evil to produce the greatest good.* This argument is founded on a mistake. Suppose this principle is strictly and generally true with regard to moral evil, it will by no means hold good when applied to physical evil. It is certainly lawful to pull down a house, in order to save a whole town from fire. This is a physical evil, which can hardly take place without some degree of moral evil. A whole province is laid under water, to prevent the transient devastations of an enemy; entrance is refused into an harbour to a sinking vessel when suspected of infection. In a time of plague lines are drawn, and, though humanity shudders at the thought, orders are given, without scruple, to fire indifferently on all those who offer to pass them. Is therefore the small physical, or, if you will, moral evil of Inoculation, to be compared with all these evils, which are tolerated, allowed of, authorized by all laws?

But the charge is still renewed. *Who will ever persuade a tender father, wilfully to give his only son a distemper which he may possibly die of? Be the danger ever so small to which he exposes him by Inoculation, were it but one in a hundred, nay in two or three hundred,*

*hundred, that this operation is fatal to, as is supposed, ought he voluntarily to expose his son to this danger?*

Yes, sure, to save him from one infinitely greater. If prejudice does not totally extinguish the light of reason in the father, if he loves his son with a rational love, he cannot hesitate one moment.

This is not a question in morality, it is a matter of calculation. Why should we make a case of conscience of a problem in arithmetick?

A father ought to avert the dangers his son is threatened with; and if he cannot totally preserve him from them, he ought to lessen the peril as much as possible. Upon this principle ought he, or ought he not, to inoculate his son? To decide this question, you need only compare the hazards the child runs in both cases.

I shall not enter into all the considerations that might help us to ascertain the degree of probability that a new-born child may one day die of the small-pox; this hazard is in a compound ratio of the probability that the child will have the distemper, and of the chance of his dying if ever he has it. Now besides that we have not perhaps sufficient experience to solve this problem exactly,



exactly, I only propose here to establish, upon known calculations, such truths as may strike at first sight any one who is no Mathematician.

The first observation that occurs is this; That if the small-pox were unavoidable, the danger of dying of it would be almost equal for a child, who is but just born, and one who is actually seized with the distemper. Therefore if the number of those who never have it is very small, the slender hopes of escaping it does but very little lessen the risk which the new-born infant runs of dying of it one time or other.

But as children are not inoculated till after the age of two years, it only concerns us to enquire into the danger they are in after that age. The bishop of *Worcester* affirms in his sermon as a matter of fact, confirmed both by experience and by calculation, that of those who live to be men, there is scarce one in many hundreds who escapes the small-pox<sup>n</sup>.

Upon

<sup>n</sup> *The instances of those who pass through life after having arrived at manhood, and having been within the reach of infection, without undergoing this direful disease, are so extremely few, as scarce to form an exception; learned calculations have made it as one to many hundreds. Bishop of Worcester's Sermon on Inoculation, p. 10. Dr. Jurin found that, out of a hundred persons inoculated,*

Upon this supposition, a person of more than two years of age is nearly in the same danger of dying of the small-pox, as if he actually laboured under the distemper. Now, since it appears by Dr. *Jurin's* computations, that a seventh part of those, who have the small-pox, die of it, the risk a child runs after the age of two years, is likewise in the proportion of one to six, or thereabouts, so at that age there is a probability of one seventh or at least one eighth not only that he will have the small-pox, but that he will die of it; that is, the odds for his life are no more than seven to one.

The same inference may be drawn from some observations of Dr. *Jurin's*, which seem at first sight to contradict the foregoing calculation; but as I would not interrupt the thread of this discourse, I shall insert it in a note<sup>o</sup>, and come now to the question proposed.

It

the operation had no effect upon four. This might lead us to think, that in a hundred there would likewise be four, who would not have it in the natural way. But some abatement ought to be made in this number; because it is possible, and even probable, that at least one of those upon whom Inoculation had no effect, had gone through the distemper in his infancy, and had since forgot it.

<sup>o</sup> It appears by the Bills of Mortality for forty-two years in and about *London*, and by a supplement of four  
years



It is plain that a father ought not to expose his son to any, even the most distant danger, if he was sure the child would never be liable to it; but as he is so far from having any revelation to this purpose, that he is on the contrary certain, that the chance against his son's life is as one in seven, it is no less evident, that his paternal love requires him to rescue his son from that danger if he can. Though by inoculating him he should only lessen the danger by one half, or one third, or even by one quarter, or less, reason would prompt him to it; much more when by that means the risk is reduced almost to nothing, since, according to the latest experiments, upon 300 Inoculations not one accident is found to happen.

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years to the old bills, that some years an eighth part of the number are carried off by the small-pox, and that upon an average this distemper sweeps away the fourteenth part of mankind, or 72 out of a 1000, which seems to contradict what we have laid down in computing the hazard of dying of it at the rate of one to seven or eight. But we must take notice, that in the above lists are included those that die at all ages, and that of 1000 children born, 386 or more die under two years of age, and generally before they have had the small-pox; so that it is out of the remaining 614 that we are to deduct the 72 that die of this distemper, which makes almost the eighth part, and comes very near to our first proportion. The two computations might be brought still nearer by various considerations.

Instead of one child, let us suppose the father has seven, of two years old and upwards; if he leaves it to nature he must expect they will have the small-pox one time or another, and he may lose one of the seven, perhaps two if it proves a malignant sort, and this, very likely, when they have completed their education, and given him the greatest hopes. If he inoculates them in their childhood, it is highly probable he will save them all. But still it will be said, perhaps Inoculation will deprive him of his favourite child, who might have escaped the natural small-pox. This is really a frivolous fear, since the artificial distemper is infinitely safer than the natural, and experience has shewn, that whoever would not have catch'd it in one way will not take it in the other. But put it to the worst; suppose, though against all probability, that the darling should die, still the father has done his duty in lessening the danger as far as in him lay. He has many more reasons to comfort himself for his loss than he would have had if his daughter, after having been well settled, had died in childbed of her first child, as it is most likely her life would not have been endanger'd by letting her live single. But all this will appear more obvious, and the

the



the calculations more exact, upon a great than a small number.

A planter has 350 young slaves, who have not yet had the small-pox; if he lets them take their chance, in the ordinary course of things, the seventh part will die, so that he will lose fifty; whereas if he inoculates them he will not lose one, according to the latest calculations, which allow but one to 376. Now ought he or ought he not to inoculate them? It must be owned that, both by former and later experience, Inoculation has proved less successful in *America*, chiefly among the Negroes, than in *Europe*, either from the nature of the climate or the ignorance of the inoculators; so that instead of one slave, possibly the master may lose 10, 16, or 20; but, for the same reason, instead of 50 he might have lost 100 or 150 by the natural small-pox.

There is indeed the greatest likelihood, that in the trials that have been made upon Negroe slaves, much less care has been taken for the preparing of them than for that of white free people, whose life is much more precious. Besides, as most of the Negroes carry from their own country a venereal taint, the choice of subjects proper for the operation must be very difficult among them.

It is of little importance whether or no there be any error in the numbers we have supposed, since the conclusion can vary but from more to less; but still you see that there is no proportion between the risks in both cases, and that the advantage is manifestly on the side of Inoculation.

Let us endeavour to illustrate this important truth by shewing it in a new light.

You are obliged, we suppose, to cross a deep and rapid river; the danger of being drowned is great, if you swim over. A bystander offers you a boat; if you reply, you had better not go over at all, you mistake the state of the question, for you are under a necessity of reaching the opposite shore. You have therefore no other choice but that of the means. This is the case of the small-pox: it is common to all mankind with very few exceptions. Most of us must cross the river. Long experience has shewn, that of seven who venture to swim over, one is carried down the stream, whereas not one in a hundred is lost of those who go over in the boat. Can you deliberate upon the choice?

Such is the fate of mankind. One third are born to die before they are two years old by incurable or unknown diseases. They who pass



pass that age are ever after exposed to the unavoidable danger of falling by the small-pox. It is a lottery, wherein we find ourselves engaged without our consent. Every one has his ticket, and many every year must draw the blank of Death. Now what do we by Inoculating, but change the conditions of this lottery by reducing the number of blanks? One in seven, and in the best climates one in ten, was generally fatal; now but one in 300, one in 500, shortly it will be but one in 1000; even now we are not without instances of it. Future ages will envy us this discovery. Nature claimed her tithe; art asks but her thousandth.

What I have said of a father with regard to his family, I may venture to say of a monarch with regard to the presumptive heir of his crown. If the thing admitted of any doubt, nay if it was not self-evident to an attentive mind, can we seriously persuade ourselves that the eldest son of a Prince of *Wales* would have been exposed to the event of Inoculation?

## PART III.

## INFERENCES AND REFLECTIONS.

**I**N order to avoid long discussions, I have hitherto supposed that the practice of Inoculation was attended with some danger, and confined myself to prove that this is comparatively nothing. And indeed the danger of one in 500 or 1000 is no more but rather less than we daily expose ourselves to, without any sort of necessity. We hunt, we ride post, we play at cricket, at tennis, we go to sea, we undertake long voyages, though we know the hazards we expose ourselves to by so doing. Will you say it is lawful to make a practice of risking one's life out of curiosity, by way of pastime, or for a frolick, and at the same time pronounce it sinful to venture that very life once for all, on a very small risk, in order to prevent a much greater? Such is the consequence the adversaries of Inoculation are reduced to, even upon the supposition that it is not altogether void of danger; but what if this pretended danger should prove none at all, as a very eminent physician intends to demonstrate?



I will not engage in a dissertation on a subject, which requires great knowledge in the theory and practice of physic, but confine myself merely to some reflections: Wherein does the danger of Inoculation consist? Is it in the operation itself, or in its consequences? It will be answered, *In both.* *A purulent matter is taken from a body tainted with a dangerous disease, and convey'd into the blood of a person in health. Is not this a shocking thing? Can such a cause fail of producing some pernicious effect?*

Let us remove this parade of words, before we begin to answer the facts; let us despise a false and childish delicacy, and remember, that had not reason got the better of prejudice, and of that natural reluctance which arises on seeing the dissection of a human body, anatomy would be still in its infancy. Does not nature recoil at the amputation of a limb, the perforation of the thorax in the empyema, the cutting for the stone, trepanning, &c? These are dreadful operations, and their success is doubtful; whereas Inoculation is but a scratch or cut hardly to be felt, while it secures us from the fear of a mortal distemper, and prevents the ill consequences

that attend it, the least of which is the being disfigured for life.

I have distinguished in Inoculation between the operation itself and its effects. As to the former it is evidently safe. A slight incision, which does but just divide the skin, differs no otherwise from a common scratch than by being less painful; and can a scratch prove mortal?

As to the effects, I refer it to experience. I shall not stand to examine whether the infection is only in the air we breathe, that is to say in an external cause, whence it would follow, that the choice of the subject that supplies the matter for Inoculation is indifferent, when it is drawn at the same time: I shall only observe, that as we are free to chuse a wholesome subject with the kindest and best sort of small-pox, they who take this precaution cannot be chargeable with having convey'd the seeds of a dangerous disease into the veins of a person in health. Besides this matter is not gather'd till the pustules begin to dry, at which time all the bad symptoms cease, and the danger, if any, is entirely over.

In short, the physicians and the vulgar, who are seldom of one mind, all agree in this, that a simple mild small-pox, at-



tended with no accidents foreign to the distemper, is but a purification of the blood, operating without any danger to life; the danger therefore can only proceed from the malignancy of the infection, or the bad disposition of the subject. Now it has been proved by thousands of experiments made in *Asia*, time out of mind, and in *Europe* for near a century past, that provided the necessary precautions are taken, such as chusing the properest season and circumstances, preparing the patient, &c. Inoculation produces none but a simple small-pox, in which great part of the venom drains off through the incisions: For that very reason it is hardly ever confluent, consequently leaves no marks, and is seldom attended with the fever of suppuration, so common, and so fatal in the natural small-pox. Need we any other arguments to convince us that the patient's life is safe under Inoculation, and that the very few accidents it has been attended with, must be imputed to some other cause? It is evident by the laws of chance that of a great number that are inoculated, some one may and must die, not only within forty days after, but within a week, perhaps the very day of the operation, for the same reason that this person might have died

a week, a day, or an hour before. Inoculation prevents the danger and the consequences of the small-pox, but I don't propose it as a preservative against sudden death <sup>P</sup>.

What I have said before, that the small-pox destroys, maims, or disfigures one fourth of mankind, may be looked upon as hyperbolic; but I prove it thus:

Towards the end of the sixteenth century, about fifty years after the discovery of *Peru*, this distemper was carried over from *Europe* to *America* by way of *Carthagena*; it over-run the continent of the new world, and destroy'd upwards of 100,000 Indians in the single province of *Quito*. I have found this account in an ancient manuscript in the cathedral of that city. I have since found, by my own observation, in the *Portuguese* settlements bordering upon the river of the *Amazons*, that the small-pox was fatal to all the natives; I mean the original *Americans*. Mr. *Maitland* <sup>q</sup>, to whom *England* is indebted for the practice of Inoculation, tells us, that some years, through-

<sup>P</sup> However I have been told that a man threaten'd with an apoplexy might be preserved from it by bleeding, diet, and the very same regimen prescribed to those who are preparing for Inoculation.

<sup>q</sup> Surgeon to Mr. *Wortley Montague*, and the same who inoculated that ambassador's children at *Constantinople* and *London*.



throughout the *Levant*, the small-pox is like a kind of plague, that sweeps away at least one third of those who are seized with it. If we consult the lists inserted in or added to Dr. *Jurin's* treatise, especially those of Dr. *Nettleton*, who had enquired from house to house in several towns, of the number of sick and dead within the year; which of all others is the surest way to arrive at any certainty, we shall find that in some years one fifth or more have died of those who had the small-pox in *London* and in several counties of *England*. Let us however keep to Dr. *Jurin's* conclusion<sup>r</sup>, who upon a moderate computation makes it out, that in the common run of the small-pox, one seventh of the sick generally dies. But among those who outlive it, how many either totally or partly lose their sight or hearing? How many are left consumptive, weakly, sickly, or maimed? This is a confession made even in that very thesis, which represents Inoculation as a criminal practice<sup>s</sup>. How many are disfigured for life by horrid scars, and become shocking objects to those who approach them? Lastly, in that sex,

<sup>r</sup> See his *Account of the Success of Inoculation*.

<sup>s</sup> *Quos non jugulat, deformitate turpes, orbos organis, &c. Questio Medica in Scholis Medicorum. Par. 30 Decem. 1723.*

sex, where outward form is so great an advantage, how many lose, together with their beauty, some their husbands love, others the prospect of a happy settlement; whence a real loss must accrue to the state?

Granting the number of those who suffer by the effects of the small-pox to be no more than equal to the number of those who die of it, after having escaped the first dangers of childhood, it will still be true that of 100 persons this sickness carries off 13 or 14, that is a seventh of the whole, and that the like number wear the marks of it for the remainder of their life. Having thus 28 witnesses out of 100, had I not a sufficient warrant to say, that this scourge destroys or injures one fourth part of mankind?

It appears from the particulars above-mentioned, that Inoculation prevents all these misfortunes. It is not only true that the inoculated small-pox is not mortal, nor even dangerous, but likewise that it leaves nothing behind it, that can awaken any sad recollection.

These are not the wild conjectures of a systematic brain, but the result of facts discussed on both sides, collected and published to the world by learned divines, able  
physicians,



physicians, and skilful Surgeons. I have cited my authorities. The names of the Bishop of *Worcester*, of Dr. *Jurin* Secretary to the *Royal Society*, and of Mr. Serjeant *Ranby*, are at the head of the list, and make it needless to produce any more.

Struck with the depositions of so many respectable witnesses, who for these thirty years past have borne testimony to the usefulness of Inoculation, Dr. *Hecquet* would no longer say, that it is an old woman's remedy not yet supported by practice, which we want to thrust upon the physicians in this rough state. Upon better information, he now would yield to evidence; his strict probity and love of truth would make him an advocate for Inoculation, who was while living one of its warmest opponents.

Prudence required that we should not too precipitately embrace a novelty, though ever so specious. It was highly proper that time should be suffered to cast new lights upon it. Thirty years experience has clear'd up all doubts, and ascertain'd the safety of this method. The proportion of those who have died of the small-pox in *England* is less by one fifth †, since Inoculation is become more common. People have at length  
open'd

† Bishop of *Worcester's* Sermon.

open'd their eyes. It is now demonstrated in *London*, that the inoculated small-pox is both safer than the natural, and preventive of it; and in a country where the outcry has been so furious against this practice, there is scarce an enemy left, who dares to attack it openly. The force of evidence, and the shame of defending a desperate cause, have silenced its most passionate adversaries. Let us in our turn open our eyes; it is high time we should examine, and avail ourselves of what passes so near us.

The fable of the Minotaur, and of that shameful tribute which the *Athenians* were deliver'd from by *Theseus*, seems at this day to be realized in *England*. A fell monster had for twelve centuries together fed upon human blood<sup>u</sup>. Of a thousand persons, who had escaped the first dangers of childhood, that is, of the choicest part of mankind, he frequently selected 200 victims. Hereafter he will only seize on those, who unluckily fall in his way, or come within his reach without sufficient caution. A wise and learned nation, our neighbours and  
our

<sup>u</sup> The small-pox, was not known in *Europe* till the beginning of the sixth century; it was brought by the *Arabs*. It appears to have been of a longer standing in *China*. See *Father d'Entrecolles's Letter*; *Lettres Edifiantes*, Vol. XX.



our rivals, have not disdained the instructions of an ignorant people, how to subdue and tame this monster; they have learnt the art of transforming him into a domestic animal, and make him serviceable to the saving those very lives, which would have fallen a prey to his voracious jaws.

While among us the small-pox continues its devastations, we still remain idle spectators; as if *France*, because it has fewer resources to increase her numbers, stood in less need of inhabitants than *England*. If we have not had the honour of setting the example, let us at least have the resolution to follow it.

It has been proved \* that the fourteenth part of mankind annually dies of the small-pox. Therefore of 20,000 persons that die yearly in *Paris*, this dreadful distemper carries off 1440. The greatest enemies to Inoculation have pretended indeed that it was fatal to one in fifty. A false and unjust accusation; but suppose it true. Then of 1440 people, 29 would die if they were inoculated; so that by the very account of the opponents, you would still save 1411\*. It

\* See the yearly *Bills of Mortality* in and about *London*, for 42 years, in Dr. *Jurin's* book, and the supplements to them in *Kirkpatrick's Analysis*.

\* The author here supposes those persons only to be

It is therefore plain to a demonstration, that the introducing of Inoculation would annually save upwards of 1400 lives in the single city of *Paris*, and more than 28,000 throughout the kingdom, supposing *Paris* to contain but the 20th part of the inhabitants of *France*.

With

inoculated who would in the course of the year have died of the natural distemper. But as it is impossible to distinguish them beforehand, so it is natural to believe that Inoculation would have saved fewer of the subjects who are ill disposed for the distemper, than it doth of those who are properly chosen for the operation. To rectify this defect, we may say, that if at *Paris* 1440 persons die annually of the small-pox, seven times that number, or upwards of 10,000 people may be supposed to have had this distemper in the same period of time. If then 10,000 persons were every year inoculated in that city, there would die 200 under the operation, by the proportion of one in fifty. This number subtracted from the former one of 1440 makes the number of lives saved at *Paris* to be 1240, and near 25,000 for the kingdom of *France*. I have the pleasure of finding this way of reasoning agreeable to what the learned Bishop of *Worcester* has made use of to compute the number of lives that might annually be preserved in *London* by Inoculation; (see his sermon, p. 21, and 22.) with this difference only, that instead of in one fifty, (a proportion certainly much too great) he allows but one in two hundred to die by that artificial infection. On the supposition of this friend to Inoculation, of 2000 persons who die every year in this metropolis of the natural small-pox, no less than 1930 might be preserved, and upwards of 1700 on that of the greatest enemies to the practice.



With what horror do we read, that in the ages of darkness and what we call barbarity, the superstition of the *Druids* did blindly sacrifice human victims to their deities! yet in this enlighten'd, polite, and philosophic age, as we proudly call it, we are not aware, that every year by our ignorance, our prejudices, our indifference to the good of mankind, we devote to death, in *France* only, 28,000 subjects which it would be in our power to preserve to the state. Surely we must confess we are neither philosophers nor patriots.

But if it be true that the public welfare requires the establishment of Inoculation, should not a law be enacted to enforce it, by obliging all parents to inoculate their children? It is not within my province to decide this question. At *Sparta*, where children were the property of the state, such a law would doubtless have passed; but our manners are as widely different from theirs, as our times are distant from those of *Lycurgus*. Besides, this law would not be necessary in *France*; encouragement and example would be sufficient, and perhaps have more weight.

Let us carry our views into futurity. Will Inoculation be one day established amongst

us? I do not doubt it. Let us not so far dishonour ourselves as to despair of the progress of human reason. She advances indeed but slowly: ignorance, superstition, prejudice, fanaticism, an indifference for the public welfare, are so many obstacles that retard her march, and dispute every inch of ground with her; but after ages of struggle, at last comes the time of her triumph. The greatest of all the obstacles she has to surmount is that indolence, that insensibility, that listlessness for every thing that does not immediately and personally concern us; This indifference has been frequently extol'd as a virtue, and adopted by some philosophers as the result of long experience. They have, and indeed speciously, urged the ingratitude of men, the inefficaciousness of all our endeavours to undeceive them, the vexations we draw on ourselves by pointing out the truth, the contradictions we are to expect, and the hazard of forfeiting our tranquillity, which these sages call the most desirable thing in the world.

These considerations, I must confess, are enough to damp the warmest zeal; but the wise have still one expedient left, which is to shew truth afar off, to sow the seeds of it  
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if possible, and patiently to wait till time and circumstances shall bring it to maturity.

Every institution, how useful soever, requires time and the concurrence of favourable circumstances to secure its success; the public welfare alone is no where a sufficient spring of action.

Was it the good of mankind, that drove the *Circassians* and *Georgians* into Inoculation? Let us blush for them, since they are men like ourselves, at the vile motive that induced them to contrive this salutary practice, which was no other than sordid interest, and the desire of preserving the beauty of their daughters, in order to make a better market of them among the *Persians* and *Turks*. What was it that first introduced and afterwards revived Inoculation in *Greece*? The contrivance of an artful and selfish woman, who found means to levy a tax upon the fears and superstition of her countrymen. A cruel epidemy, that carried terror and desolation into the most illustrious families, produced the same effect at *Geneva*\*. In *Guiana*, a timorous monk was induced, by fear, perhaps by despair at seeing all his *Indians* cut off one by one, to venture upon a method he was but little acquainted with,

\* See Mr. *Guyot's* account in the *Memoirs of the Academy of Surgery*, Vol. II.

with, and which he himself thought unsafe. Nobler motives undeniably introduced Inoculation into *England*. Nothing redounds more to the honour of that nation, of the *College of Physicians*, and of the *British Monarch*, than the resolution and wise precautions, with which they admitted this method, though not till it had struggled with a thirty years contradiction.

Although the whole kingdom of *France* were convinced of the usefulness and importance of this practice, it can never make its way among us, without the countenance of the government; and the government will never resolve to countenance it, without consulting the most respectable authorities in such matters. It is therefore the business of the faculties of divinity and physic, of the academies and chief magistrates, and of the learned, to remove all those scruples fomented by ignorance, and make the people sensible that their own advantage, christian charity in general, the welfare of the state, and the preservation of mankind, are all concern'd in the establishment of Inoculation. In an affair that relates to the public welfare, it is incumbent on a thinking nation, to enlighten those who are capable of receiving light, and lead  
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that crowd by authority, who are not to be wrought upon by evidence.

Are experiments yet wanting? Do we stand in need of further information? Let the managers of our hospitals have orders carefully to distinguish in their annual lists of sick and dead the different kinds of diseases, and the numbers that are seized with them, according to the method of the bills of mortality in *England*. Let Inoculation be tried in one of these hospitals upon a hundred subjects, who shall voluntarily submit to it; let a like number of patients of the same age be taken in with the natural small-pox; let all these be constantly attended by the physicians and surgeons, and the whole process carried on under the inspection of an overseer of known abilities, integrity and zeal. Then let the respective lists of dead be compared and laid before the public. If any doubts remain, the means of removing them will not be wanting, whenever we are willing to be informed.

Inoculation, I repeat it, will one day prevail in *France*, and then we shall wonder that we have not admitted it sooner. But when will that day come? Shall I venture to speak it? It will be when an event like that which, not two years since, spread  
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such a general consternation amongst us, though it was indeed changed into transports of joy<sup>y</sup>, shall rouse the public attention; or, which heaven avert! it will be at the fatal time of a like catastrophe to that which overwhelmed *France* with grief, and well nigh shook the throne in 1711<sup>z</sup>. Had we then been acquainted with Inoculation, the recent smart of that stroke, and the fear of that which threaten'd our dearest hopes, had made us gladly accept as a present from heaven that preservative, which now we slight; but, to our shame be it spoken, to the shame of that proud reason which does not always sufficiently distinguish us from brutes, the past and the future make hardly any impression upon us, the present only affects us. Shall we never grow wise but by dint of misfortunes? Shall we not build a bridge at *Neuilly*, till *Henry IV.* shall have run the risk of his life in crossing the ferry? Shall we defer widening our streets till he has been murder'd in them?

P. S.

<sup>y</sup> The dauphin's having the small-pox.

<sup>z</sup> The death of the dauphin *Lewis*, grandfather to *Lewis XV.* who died of the small-pox *April 14, 1711*, aged 49. The emperor *Joseph* died of it the 17th of the same month, in the 33d year of his age.



*P. S.* Some will perhaps call all this a paradox, which should thirty years since have lost that name. But this objection I need not apprehend in the center of the capital. I might on the contrary, upon much better grounds, be accused of having set forth none but common truths, well known to all who are capable of reflection, and informed a learned audience of nothing new. May this *Essay* draw upon me no worse a reproach than this! far from fearing, I wish for it. But above all, may the following be number'd among those obvious truths, which it was needless for me to mention, that *had Inoculation prevailed in France in 1723, near a million of lives had by this time been saved to the state, exclusive of posterity.*

F I N I S.

The first of these is the fact that the  
 University of Chicago has a long and  
 distinguished history of scholarship  
 and research in the field of the  
 social sciences. It is one of the  
 leading universities in the world  
 for its work in this field. The  
 University has a number of  
 departments and schools which  
 are devoted to the study of  
 the human mind and its  
 activities. The University  
 has a high reputation for  
 its work in the field of  
 the social sciences. It is  
 one of the leading  
 universities in the world  
 for its work in this field.